

9

Best Management Practices Requirements

This section describes actions you must take to implement best management practices (BMPs) and suggests some areas where you may choose to go beyond the national regulations. This section also describes the mandatory components of the BMPs, focusing on the BMP monitoring requirements and the BMP plan, and outlines the BMP compliance schedule. For additional guidance on implementing BMPs, refer to *Technical Support Document for Best Management Practices for Spent Pulping Liquor Management, Spill Prevention, and Control* (EPA 821-R-97-011).

What are BMPs?

BMPs establish practices, rather than numerical limits, that reduce the release of toxic, conventional, and nonconventional pollutants to receiving waters. Under CWA 402(a)(1) and 40 CFR §122.44(k), BMPs can be imposed on a case-by-case basis. However, EPA decided to implement the BMP program by regulation for Subparts B and E to ensure that mills with operations in those subparts have effective BMP programs and to ensure uniform application of regulatory requirements across industry segments. You may, subject to state law, require more stringent BMPs than those required by the federal regulations.

The principal objective of BMPs is to prevent losses and spills of spent pulping liquor (i.e., black liquor) from process equipment; the secondary objective is to contain, collect, and recover, or otherwise control, spills, losses, and intentional diversions that do occur. BMPs also apply to turpentine and soap (pulping byproducts), for mills that generate these materials.

BMPs require mills to implement practices intended to prevent losses and spills of spent liquor. EPA has identified equipment and procedures that could be used to implement effective BMPs; however, EPA intends that mill owners and operators should have maximum flexibility to address management and control of spent pulping liquor at their mills, within the context of the general implementation requirements. Therefore, it is up to mill owners and operators to decide which equipment and control strategies are appropriate and effective at their mill.

How Do I Incorporate BMPs into Permits?

You must incorporate BMP requirements for new and existing direct dischargers as special conditions in NPDES permits (see 40 CFR §430.03(j)). Appendix C contains example permit language. For indirect dischargers, BMPs are pretreatment standards that must be included in updated pretreatment agreements.

Extension of BMP Requirements to Subparts Other Than B and E

EPA has promulgated BMPs only for Subparts B and E but has proposed BMPs for mills with chemical pulping operations (covered in Subparts A, C, D, F, and H). You may use the BMP requirements for Subparts B and E as guidance in issuing permits containing BMPs for mills with operations in other subparts. Similarly, for indirect dischargers, you may impose BMPs as local limits for mills with production in subparts for which BMPs have not yet been established.

Extension of BMP Requirements to Fresh Pulping Liquors

The BMP requirements specified by EPA apply to spent pulping liquors, soap, and turpentine. Depending upon mill circumstances and the likelihood of losses, you may use BPJ to decide if white or green liquors (Subpart B) or fresh sulfite pulping liquor (Subpart E) should be included in BMPs (see below).

BMP Plan

The rule requires mills to develop and implement a BMP plan (40 CFR §430.03(d)). The BMP plan documents each mill's approach to achieve full BMP implementation, and must:

- Contain a detailed engineering review of the mill;
- Specify procedures and practices to be implemented to meet the requirements of every mandatory component;
- Detail the construction that the mill determines is necessary to meet the mandatory components, including the construction schedule; and
- Describe the monitoring program that will be used to meet the BMPs monitoring requirements (discussed in detail in Section 9).

Engineering Review

The rule requires each mill to conduct a detailed engineering review of its pulping and chemical recovery operations -- including but not limited to process equipment, storage tanks, pipelines and pumping systems, loading and unloading facilities, and other appurtenant pulping and chemical recovery equipment in spent pulping liquor, soap, and turpentine service -- to determine potential leaks, spills, and intentional diversions of spent pulping liquors, soap, and turpentine during the following periods of operation (40 CFR §430.03(d)(2)):

- Process startups and shutdowns;
- Maintenance;
- Production grade changes;
- Storms or other weather events;

- Power failures; and
- Normal operations.

As part of the engineering review, mills must determine whether:

- Existing spent pulping liquor containment facilities have enough capacity to collect and store anticipated intentional liquor diversions as well as potential spills.
- Continuous, automatic monitoring systems are needed to detect and control leaks and spills of spent pulping liquor, soap, and turpentine;
- Process wastewater diversion facilities are needed to protect end-of-pipe wastewater treatment facilities from adverse effects of spills and diversions of spent pulping liquors, soap, and turpentine;
- Potential for contamination of storm water from the immediate process areas exists; and
- Segregation and/or collection and treatment of contaminated storm water from the immediate process areas is appropriate.

Amendment of BMP Plan

The regulation requires mills to amend the BMP plan whenever there is a change in mill design, construction, operation, or maintenance that affects the potential for leaks and spills from the immediate process areas (40 CFR §430.03(e)).

Each mill must review and evaluate the BMP plan five years after it is first prepared and, unless there are substantial changes necessitating more frequent review, once every five years thereafter. The mill must amend the BMP plan within three months of the review if the mill determines that any new or modified management practices are necessary to reduce significantly the likelihood of spills and leaks.

Review and Certification of BMP Plan

The BMP plan, and any amendments, must be reviewed by the senior technical manager at the mill and approved and signed by the mill manager. Any person signing the BMP plan must certify to you under penalty of law that the BMP plan has been prepared in accordance with good engineering practices and in accordance with the regulation. You are not required to approve the BMP plan or any future amendments (40 CFR §430.03(f)).

Recordkeeping Requirements

The rule requires mills to maintain a complete copy of the current BMP plan on site (40 CFR §430.03(g)). As specified in the rule, mills must maintain records that demonstrate compliance with BMP implementation requirements. The mill must maintain the following records for three years from the date they are created:

- Records tracking repairs performed as part of the mill's repair program (§430.03(b)(2));

- Records of initial and refresher training (40 CFR §430.03(b)(4));
- Reports of reviews of spills and intentional diversions (40 CFR §430.03(b)(s); and
- Records of wastewater monitoring to detect leaks and spills, track the effectiveness of the BMPs, and detect trends in spent pulping liquor losses (40 CFR §430.03(b)(10) and (h)).

The BMP plan and records must be made available to you or your authorized enforcement personnel upon request.

What Are the Implementation Requirements for BMPs?

The rule outlines the components of BMPs considered integral to preventing leaks and spills of spent pulping liquors, soap, and turpentine (40 CFR §430.03(c)). Under the rule, mills must implement the following BMPs:

1. Return spilled or diverted spent pulping liquors, soap, and turpentine to the process to the maximum extent practicable as determined by the mill.
2. Establish a program to identify and repair leaking equipment. The program must include:
 - Regular visual inspections of process areas with spent pulping liquor, soap, and turpentine service equipment;
 - Immediate repairs of leaking equipment (if not immediate, then the mill must control the leak and repair the equipment as soon as possible);
 - Identification of conditions under which production will be curtailed or halted to repair leaking equipment or to prevent leaks and spills; and
 - A system of tracking repairs over time to identify equipment that may need to be upgraded or replaced because of frequency and severity of leaks, spills, or failures.
3. Operate continuous, automatic monitoring systems to detect and control leaks, spills, and intentional diversions. These monitoring systems may be integrated with the mill process control system and may include high-level monitors and alarms on storage tanks, and conductivity (or pH) monitors and alarms in process areas, process area sewers, process wastewater, and the wastewater treatment plant.
4. Establish a training program for operators, maintenance personnel, and other technical and supervisory personnel who operate, maintain, or supervise the operation and maintenance of equipment in spent pulping liquor, soap, and

turpentine service. Conduct refresher training at least annually. The training program must be documented.

5. Prepare a brief report that evaluates each spill and any intentional diversion that are not contained at the immediate process area. The report must describe the equipment involved, the circumstances leading to the incident, the effectiveness of the corrective actions taken to contain and recover the spill or intentional diversion, and plans to develop any necessary changes to equipment and operating and maintenance practices to prevent recurrence. The annual refresher training must include discussion of these reports.
6. Establish a program to review any planned modifications to the pulping and chemical recovery facilities and any construction activities in the pulping and chemical recovery areas before these activities commence. This review is to prevent leaks and spills during the planned modifications and to ensure that construction and supervisory personnel are aware of possible liquor diversions and of the requirement to prevent leaks and spills during construction.
7. Install and maintain secondary containment constructed of materials impervious to pulping liquors for spent pulping liquor bulk storage tanks equivalent to the volume of the largest tank plus enough capacity for precipitation (e.g., rainfall). An annual tank integrity testing program, if combined with other containment or diversion structures, may be substituted for secondary containment of these tanks.
8. Install and maintain secondary containment for turpentine bulk storage tanks.
9. Install and maintain curbing, diking, or other means of isolating soap and turpentine processing and loading areas from the wastewater treatment plant.
10. Conduct wastewater monitoring to detect leaks and spills, to track the effectiveness of the BMPs, and to detect trends in spent pulping liquor losses.

What is Tank Integrity Testing?

Annual tank integrity testing should consist of two components:

1. Annual visual inspections to check for leaks, cracks, corrosion points, paint peeling bulges, dents, etc., and
2. Ultrasonic thickness (UT) testing.

Mills personnel should perform annual visual inspections and record the results of the inspection. *The frequency of UT testing is determined by the mill.* Factors that should be considered when determining appropriate testing frequency should include the types of tanks (i.e., pressure versus atmospheric), tank metallurgy (i.e., carbon steel versus stainless steel), and age. Table 9-1 summarizes acceptable UT testing frequencies based on these factors. Of course these factors vary

from mill to mill and from tank to tank. For those mills that do not perform UT testing, they may also refer to the American Petroleum Institute API 653 standards or the American Standards for Testing Materials ASTM G158 standards for information regarding the use of UT testing of metals. (Note: some mills currently perform UT testing on black liquor storage tanks at a specified frequency to comply with their insurance policies.)

Table 9-1: Annual Tank Testing Frequency

Type of Tank	Tank Metallurgy	Age	UT Testing Frequency(a)
Pressure Tank	Carbon Steel	< 15 years	every 2 years
		> 15 years	every year
	Stainless Steel	< 15 years	every 4 years
		> 15 years	every 2 year
Atmospheric Tank	Carbon Steel	< 15 years	every 5 years
		> 15 years	every 3 years
	Stainless Steel	< 15 years	every 10 years
		> 15 years	every 5 year

What Are the BMP Monitoring Requirements?

There are two types of monitoring associated with BMPs: 1) monitoring of tanks, sumps, and sewers as an element of the BMP program, and 2) monitoring of BMP effectiveness.

Monitoring of Tanks, Sumps, and Sewers as Elements of BMPs

As discussed below, the rule requires that the mill assess the possible sources of spent pulping liquor, turpentine, and soap releases to determine what additional spent pulping liquor containment facilities, monitoring systems, and operating practices may be necessary to detect and control leaks, spills, and intentional diversions. Some mills may implement an effective BMP program by adding conductivity or color monitors at strategic locations within the mill. By placing monitors in sumps, tanks and sewers, the mill would contain some spills and detect leaks early, thereby reducing the amount of spent pulping liquor reaching the wastewater treatment plant. The BMP plan should explain the rationale for the number and placement of such monitors as well as describing the response to alarm levels for these monitors. Explanation of the function of and response to monitors and alarm eaves should be part of the BMP training program.

Monitoring of BMP Effectiveness

The rule requires a mill to collect daily measurements of a parameter at the influent to wastewater treatment (or some other appropriate location as described below) to monitor the performance of the BMP program (40 CFR §430.03(i)). This monitoring is intended to systematically measure progress in reducing losses of spent pulping liquor, turpentine, and soap by effectively using BMPs

and to assure that the BMP program continues to be effective over time. This monitoring program is not a substitute for spill and leak detection monitoring that is conducted as part of the BMPs.

Action Levels

To establish an effective monitoring system, the rule requires existing dischargers to conduct an initial six-month monitoring program to characterize wastewater treatment influent (40 CFR §430.03(h)). Based on the results of this initial monitoring program, the mill will determine action levels. An action level is a pollutant loading determined by statistical analysis of six months of daily measurements (40 CFR §430.03(b)(1)). The action levels must consist of a lower action level, which if exceeded, will trigger investigation requirements, and an upper action level, which if exceeded, will trigger corrective action requirements. The *Technical Support Document for Best Management Practices for Spent Pulping Liquor Management, Spill Prevention, and Control* provides an example based on actual mill data and suggests that the 75th- and 90th-percentile values might be appropriate levels for investigative and action responses, respectively. The mills, however, may establish alternative action levels based on an examination of the variability of the specific parameter they have chosen.

The rule requires mills to complete a second six-month monitoring program to determine revised action levels as soon as possible after they have implemented the BMP requirements outlined earlier in this section (40 CFR §403(h)(4)). These revised action levels will then be used to measure full BMP effectiveness implementation.

Because new mills must implement all BMP requirements when they start operation, the rule requires new mills to complete one six-month monitoring program to develop the lower and upper action level limits based on the results of that program (40 CFR §430.03(h)(5)).

Monitoring Pollutant Parameters

Although mills are required to implement a BMP monitoring program, they have flexibility in selecting the specific parameter to be measured. EPA recommends using COD because of its sensitivity to turpentine, soap, and spent pulping liquor. However, the rule allows Total Organic Carbon (TOC) and 24-hour averages of color or specific conductivity as alternatives. For mills that do not pulp softwood furnish or mills that effectively isolate turpentine or soap from all pathways that could enter the wastewater treatment plant, mills may select alternatives to COD. (See *Technical Support Document for Best Management Practices for Spent Pulping Liquor Management, Spill Prevention, and Control* for more details.)

Direct dischargers must conduct monitoring at the point influent enters the wastewater treatment system, whereas indirect dischargers must conduct monitoring at the point of discharge to the POTW (40 CFR §430.03(h)(2)). Mills may also sample at locations other than the discharge to the wastewater treatment plant. For example, a mill may choose to monitor locations “upstream” of the combined mill influent-to-treatment to better identify the problem areas at the mill (e.g., pulp mill, chemical recovery operations, and bleach plants), as long as there are no points “downstream” of the sample points where waters potentially containing spent pulping liquor, turpentine, or soap enter the wastewater stream.

Corrective Action and Reporting Requirements

Whenever monitoring results exceed the lower action level, the rule requires mills to investigate the cause. Whenever monitoring results exceed the upper action level, the rule requires mills to take corrective action to bring the wastewater treatment system influent mass loading below the lower action level as soon as practicable. While exceeding an action level does not constitute a violation of an NPDES permit or pretreatment standard, failure of the mill to investigate and take corrective action does (40 CFR §430.03(i)(2)).

Mills are required to report to you the following: a summary of the monitoring results, the number of times and dates action levels were exceeded, and brief descriptions of any actions taken to correct the situation. You must establish the frequency of report submissions, but they must be submitted at least once a year (40 CFR §430.03(i)(4)).

What Are the BMPs Compliance Deadlines?

For existing direct discharges, you must establish NPDES permits that contain the deadlines outlined in Table 9-2. If one or more of the deadlines has passed at the time a mill's NPDES permit containing BMP requirement is issued, you must ensure that the permit requires the mill to immediately comply with the BMP requirement for which compliance dates have passed. For existing indirect dischargers, pretreatment control agreements must be updated so that BMPs are implemented by the schedule in Table 9-2.

Table 9-2: BMP Compliance Deadlines Schedule for Existing Direct and Indirect Dischargers

BMP Requirements	Compliance Deadline
Prepare BMP Plan	April 15, 1999
Incorporate BMP components that do not require construction of containment structures or installation of monitoring systems	April 15, 1999
Establish initial action levels	April 15, 1999
Automatic monitoring systems in operation	April 17, 2000
Finish construction of containment structures and associated monitoring systems	April 16, 2001
Establish revised action levels	January 15, 2002

New sources must achieve full BMP implementation and prepare the BMP plan prior to operation. As Table 9-3 notes, a new source must establish the action levels no later than 12 months after beginning wastewater discharge, based on six months of monitoring data.

Table 9-3: BMP Compliance Deadlines Schedule for New Sources

BMPs Requirements	Compliance Deadline
Establish action levels	12 months from the commencement of wastewater discharge